

CLAIMS

1. Display device comprising :

- 5 - an illumination system that generates a light beam of variable colour along an illumination axis ;
- a matrix imager (16), each pixel of which reflects the light beam with a polarization that depends on the image to be generated in the received colour, the reflecting beam being said modulated beam ; and
- 10 - a first polarization splitter (18) adapted to transmit a polarization of the light beam of variable colour in a first direction towards said matrix imager and to transmit, at least partially, said modulated beam in a second direction;
- characterized by :
- a second polarization splitter (20) adapted to transmit the said polarization
- 15 of the light beam of variable colour in a third direction towards the first polarisation splitter;
- modulated beam being polarised.

2. Display device according to Claim 1, characterized in

- 20 - the splitting surface (21) of the second polarization splitter (20) is crossed by the polarization of the light beam of variable colour, which is transmitted in the third direction
- the splitting surface (19) of the first polarization splitter (18) is crossed by the polarization of the light beam of variable colour, which is transmitted in the first
- 25 direction, and reflects the polarization of the modulated beam, which is transmitted in the second direction.

3. Display device according to one of claims 1 and 2, in which the splitting surface (19) of the first polarization splitter (18) makes with the light beam an angle having
- 30 a defined value in a first plane containing the light beam and in which the splitting surface (21) of the second polarization splitter (20) makes with the light beam an

angle having an opposite value to the defined value in a second plane containing the light beam and parallel to the first plane.

4. Display device according to Claim 3, in which the defined value is equal to 45°.

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5. Display device according to one of Claims 1 to 4, in which the first polarization splitter (18) and the second polarization splitter (20) are arranged symmetrically with respect to a plane (PP') perpendicular to the illumination axis.

10 6. Display device according to one of Claims 1 to 4, in which the splitting surface (19) of the first polarization splitter (18) and the splitting surface (21) of the second polarization splitter (20) make between them an angle having an absolute value of about 90°.

15 7. Display device according to one of Claims 1 to 6, in which the matrix imager (16) lies on the illumination axis.

8. Display device according to one of Claims 1 to 7, in which the first polarization splitter (18) at least partly transmit said modulated beam in the direction of imaging
20 means (12) for display on a screen (14).

9. Display device according to one of Claims 1 to 8, in which the colour of the light beam varies periodically among a plurality of colours.

25 10. Display device according to one of Claims 1 to 9, in which the illumination means comprise at least two colour filters (7), the light beam passing periodically through each colour filter (7).

11. Display device according to either of Claims 9 and 10, in which the light beam
30 is of three different colours successively in each period.

12. Optical motor adapted to receive a light beam of variable colour along an illumination axis, comprising :

- a matrix imager (16), each pixel of which reflects the light beam with a polarization that depends on the image to be generated in the received colour, the reflecting beam being said modulated beam ; and

- a first polarization splitter (18) adapted to transmit a polarization of the light beam of variable colour in a first direction towards said matrix imager and to transmit, at least partially, said modulated beam in a second direction ;

characterized by :

- a second polarization splitter (20) adapted to transmit the said polarization of the light beam of variable colour in a third direction towards the first polarisation splitter; and
- the optical motor being adapted to transmit a polarised modulated beam.

13. Optical motor according to Claim 12, characterized in

- the splitting surface (21) of the second polarization splitter (20) is crossed by the polarization of the light beam of variable colour, which is transmitted in the third direction

- the splitting surface (19) of the first polarization splitter (18) is crossed by the polarization of the light beam of variable colour, which is transmitted in the first direction, and reflects the polarization of the modulated beam, which is transmitted in the second direction.

14. Optical motor according to one of claim 12 and 13, in which the splitting surface (19) of the first polarization splitter (18) makes with the light beam an angle of a defined value in a first plane containing the light beam and in which the splitting surface (21) of the second polarization splitter (20) forms with the light beam an angle having an opposite value to the defined value in a second plane containing the light beam and parallel to the first plane.

15. Optical motor according to Claim 14, in which the defined value is equal to 45°.